

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 6 – EXAMINATION – SUMMER 2026

Subject Code: 3164801

Date: 08/06/2026

Subject Name: BLOCKCHAIN APPLICATION, SECURITY AND INVESTIGATION

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions:

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Simple and non-programmable scientific calculators are allowed.**

- Q.1**
- (a)** How privacy and confidentiality is handled in blockchain? **03**
 - (b)** Differentiate types of blockchains: public, private and consortium and hybrid. **04**
 - (c)** What is consensus in blockchain? Describe various consensus mechanisms. **07**
- Q.2**
- (a)** Define currency and digital tokens. **03**
 - (b)** What is blockchain? Discuss advantage and limitations of blockchain **04**
 - (c)** Discuss the generic elements of Blockchain and explain how they work together. **07**
- OR**
- Q.2**
- (c)** What is blockchain scaling and sharding? Discuss that how they help to improve network efficiency. **07**
- Q.3**
- (a)** What is decentralized blockchain? **03**
 - (b)** Explain briefly HydraChain. **04**
 - (c)** Discuss that how the blockchain provide the financial services. **07**
- OR**
- Q.3**
- (a)** Compare centralized and decentralized organizations with examples. **03**
 - (b)** Discuss the briefly Stellar. **04**
 - (c)** Explain that how the blockchain use for smart properties. **07**
- Q.4**
- (a)** Explain the role of denial-of-service attacks. **03**
 - (b)** Explain the Web 3.0 in the context of blockchain. **04**
 - (c)** What is ethereum? Discuss the components of ethereum. **07**
- OR**
- Q.4**
- (a)** Discuss the blockchain technical challenges. **03**
 - (b)** Write a note on cryptocurrencies as legal tender. **04**
 - (c)** What is Bitcoin? Explain it in details. **07**
- Q.5**
- (a)** Explain the role of Hyperledger in blockchain implementation. **03**
 - (b)** Write a note on the privacy laws and issues of blockchain. **04**

- (c) Explain the role of blockchain in enhancing security and transparency in the Internet of Things (IoT). **07**

OR

- Q.5** (a) Briefly explain security in smart contracts. **03**
- (b) What is smart contracts? Discuss their design principles. **04**
- (c) How does the blockchain in the healthcare sector improve data privacy, patient records management, and interoperability among healthcare providers? Describe the blockchain in healthcare. **07**
